

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of fabricating a surface-emission type light-emitting device including a column-shaped section formed on a substrate which functions as at least a part of a light-emitting device, which emits light in a direction perpendicular to the substrate, comprising the following steps (a) to (e):

(a) a step of forming a multilayer film including an active layer on the substrate, and etching at least a part of the multilayer film so as to form the column-shaped section,

(b) a step of forming a first resin layer so as to cover the column-shaped section,

(c) a step of forming a second resin layer by changing a solubility of an upper part of the first resin layer formed above an upper surface of the column-shaped section in a specific liquid,

(d) a step of immersing, for a specific period of time, at least the second resin layer in the specific liquid having characteristics which cause the second resin layer to dissolve, so as to remove the second resin layer at least in the area formed over the column-shaped section, and

(e) a step of forming an insulating layer which covers a side surface of the column-shaped section by curing the second resin layer.

2. (Original) The method of fabricating a surface-emission type light-emitting device as defined in claim 1,

wherein the step (c) changes the solubility of the first resin layer in the specific liquid by applying one of heat and light to the first resin layer.

3. (Currently Amended) A method of fabricating a surface-emission type light-emitting device including a column-shaped section formed on a substrate which functions as

at least a part of a light-emitting device, which emits light in a direction perpendicular to the substrate, comprising the following steps (a) to (e):

(a) a step of forming a multilayer film including an active layer on the substrate, and etching at least a part of the multilayer film so as to form the column-shaped section,

(b) a step of forming a first resin layer including a resin precursor so as to cover the column-shaped section,

(c) a step of forming a second resin layer by semi-curing an upper part of the first resin layer formed above an upper surface of the column-shaped section,

(d) a step of immersing, for a specific period of time, at least the second resin layer in a liquid in which the second resin layer dissolves, so as to remove the second resin layer at least in the area formed over the column-shaped section, and

(e) a step of forming an insulating layer which covers a side surface of the column-shaped section by curing the second resin layer.

4. (Currently Amended) A method of fabricating a surface-emission type light-emitting device including a column-shaped section formed on a substrate which functions as at least a part of a light-emitting device, which emits light in a direction perpendicular to the substrate, comprising the following steps (a) to (e):

(a) a step of forming a multilayer film including an active layer on the substrate, and etching at least a part of the multilayer film so as to form the column-shaped section,

(b) a step of forming a first resin layer including a resin precursor and a photosensitive component so as to cover the column-shaped section,

(c) a step of converting ~~a~~an upper part of the first resin layer formed above an upper surface of the column-shaped section into a second resin layer by exposing the first resin layer for a specific period of time,

(d) a step of immersing, for a specific period of time, at least the second resin layer in a liquid in which the second resin layer dissolves, so as to remove the second resin layer, and

(e) a step of forming an insulating layer which covers a side surface of the column-shaped section by curing the first resin layer.

5. (Original) The method of fabricating a surface-emission type light-emitting device as defined in claim 4,

wherein the photosensitive component has characteristics which changes solubility in the liquid by light irradiation.

6. (Original) The method of fabricating a surface-emission type light-emitting device as defined in claim 1,

wherein the liquid has characteristics which removes the second resin layer.

7. (Original) The method of fabricating a surface-emission type light-emitting device as defined in claim 1,

wherein the column-shaped section has a lower solubility in the liquid than the second resin layer.

8. (Original) The method of fabricating a surface-emission type light-emitting device as defined in claim 3,

wherein the resin precursor is a polyimide resin precursor.

9. (Original) The method of fabricating a surface-emission type light-emitting device as defined in claim 1,

wherein the insulating layer is formed of a polyimide resin.

10. (Original) The method of fabricating a surface-emission type light-emitting device as defined in claim 1,

wherein the liquid is an alkaline solution.

11. (Original) The method of fabricating a surface-emission type light-emitting device as defined in claim 1, further comprising:

a step of forming a monitoring section which monitors the removal of the second resin layer near the column-shaped section.

12. (Original) The method of fabricating a surface-emission type light-emitting device as defined in claim 11,

wherein the monitoring section is formed in the same patterning step as the column-shaped section in the step (a).

13. (Original) The method of fabricating a surface-emission type light-emitting device as defined in claim 1,

wherein the surface-emission type light-emitting device is any of a surface-emitting semiconductor laser, an LED device, and a semiconductor light amplification device.

14. (Original) The method of fabricating a surface-emission type light-emitting device as defined in claim 13,

wherein the surface-emission type light-emitting device is a surface-emitting semiconductor laser,

wherein the column-shaped section comprises an active layer, and

wherein the surface-emission type light-emitting device comprises a resonator formed of a semiconductor deposition including the column-shaped section at least in part.

15. (Original) The method of fabricating a surface-emission type light-emitting device as defined in claim 14, further comprising the following step (f):

(f) a step of forming electrodes which inject current into the active layer.

16. (Original) The method of fabricating a surface-emission type light-emitting device as defined in claim 15, further comprising:

a step of cleaning the upper surface of the column-shaped section before the step (f).

17. (Withdrawn) A surface-emitting semiconductor laser including a resonator formed on a semiconductor substrate, which emits light in a direction perpendicular to the semiconductor substrate, comprising:

a column-shaped section which forms at least a part of the resonator, and
an insulating layer which covers a side surface of the column-shaped section,
wherein the insulating layer comprises a filler.

18. (Withdrawn) The surface-emitting semiconductor laser as defined in claim 17,
wherein the filler is formed of a material having thermal conductivity higher than that
of a matrix material which forms the insulating layer.

19. (Withdrawn) The surface-emitting semiconductor laser as defined in claim 17,
wherein the filler is formed of a material having a coefficient of thermal expansion
different from that of a matrix material which makes up the insulating layer.

20. (Withdrawn) The surface-emitting semiconductor laser as defined in claim 17,
wherein the insulating layer is formed of a matrix material such as a polyimide resin.

21. (Withdrawn) The surface-emitting semiconductor laser as defined in claim 17,
wherein the particle diameter of the filler is smaller than the thickness of the
insulating layer.

22. (Withdrawn) The surface-emitting semiconductor laser as defined in claim 17,
wherein the filler is formed of an insulating material.

23. (Withdrawn) The surface-emitting semiconductor laser as defined in claim 17,
wherein the filler is formed of at least one of carbon allotropes which are carbon,
graphite and diamond.

24. (Withdrawn) The surface-emitting semiconductor laser as defined in claim 22,
wherein the filler comprises at least one of aluminum nitride, aluminum oxide, silicon
nitride and silicon oxide as an essential component.

25. (Withdrawn) The surface-emitting semiconductor laser as defined in claim 17, wherein the filler comprises at least one of aluminum, gold, silver, copper, tin, magnesium, nickel, and zinc as an essential component.

26. (Withdrawn) The surface-emitting semiconductor laser as defined in claim 17, wherein the filler is a metal particle having an insulating film on a surface.

27. (Canceled)

28. (Currently Amended) A method of fabricating a surface-emitting semiconductor laser including a resonator formed on a semiconductor substrate, which emits light in a direction perpendicular to the semiconductor substrate, comprising the following steps (a) to (e):

(a) a step of forming a multilayer film on the semiconductor substrate, and etching at least a part of the multilayer film so as to form a column-shaped section including at least an active layer,

(b) a step of forming a first matrix applying layer including a filler and a matrix precursor so as to cover the column-shaped section,

(c) a step of forming a second matrix applying layer including the filler and a provisional matrix material by temporarily solidifying an upper part of the matrix precursor which forms the first matrix applying layer formed above an upper surface of the column-shaped section,

(d) a step of immersing, for a specific period of time, at least the second matrix applying layer in a liquid in which the provisional matrix material which forms the second matrix applying layer dissolves, so as to remove the second matrix applying layer at least in the area formed over the column-shaped section, and

(e) a step of forming an insulating layer which comprises the filler and covers a side surface of the column-shaped section by curing the provisional matrix material which forms the second matrix applying layer.

29. (Original) The method of fabricating a surface-emitting semiconductor laser as defined in claim 28,

wherein the column-shaped section has a lower solubility in the liquid than the provisional matrix material which forms the second matrix applying layer.

30. (Original) The method of fabricating a surface-emitting semiconductor laser as defined in claim 28,

wherein the filler has a lower solubility in the liquid than the provisional matrix material which forms the second matrix applying layer.

31. (Original) The method of fabricating a surface-emitting semiconductor laser as defined in claim 28,

wherein the matrix precursor is a polyimide resin precursor.

32. (Original) The method of fabricating a surface-emitting semiconductor laser as defined in claim 27,

wherein the insulating layer is formed of a matrix material such as a polyimide resin.

33. (Original) The method of fabricating a surface-emitting semiconductor laser as defined in claim 28,

wherein the insulating layer is formed of a matrix material such as a polyimide resin.

34. (Withdrawn) An optical module comprising the surface-emitting semiconductor laser as defined in claim 17 and an optical waveguide.

35. (Withdrawn) An optical transmission device comprising the optical module as defined in claim 34.